

Village Power Wind Applications

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Kotzebue Wind-Diesel System

- Owned by Kotzebue Electric Association
- Wind-diesel system for predominantly Inupiat Eskimo village of 3000 people
- Three AOC 50-kW wind turbines installed; seven additional 50-kW AOC turbines to be installed
- Several large diesels including 3-MW diesel
- Initial funding by State of Alaska, additional funding by DOE
- System reduces life-cycle cost of energy by displacing diesel fuel consumption.



7-kW Turbine in Villa Las Araucarias

Wind-electric Water Pumping in Indonesia

- 1.5-kW wind turbine directly connected to an off-the-shelf 3-phase Grundfos centrifugal water pump
- Variable voltage and frequency output of wind turbine results in variable speed water pumping
- Low head (4-6 m) high volume (up to 150 m³/day) small plot irrigation application
- More efficient than conventional mechanical wind water pumping systems
- Installed at the Small-Scale Irrigation Management Project - Oesao Demonstration Farm, Timor.



300-W turbine in the Dominican Republic



50-kW turbines in Kotzebue, Alaska

Villa Las Araucarias Hybrid System

- Inland village community supported by forest industry
- Health post, school, and 17 homes electrified
- 9.8-kWh daily load with significant load increase expected
- System supplies 24-hour power
- System includes 7-kW Bergey turbine, 3-kW TRACE inverter, 33.6-kWh battery bank of Trojan L-16s, 5.4-kW autostart Honda generator, and 220-volt, 50-hz AC distribution grid.



10-kW turbine directly coupled to a water pumping system

Micro-Turbines for Electrification of Remote Schools, Health Posts, and Homes in the Dominican Republic

- 300-W Southwest Wind Power Air Turbine used for remote electrification of small loads in the Dominican Republic
- Turbines are inexpensive and easy to install
- Turbine package includes batteries, a charge controller, and a small inverter.